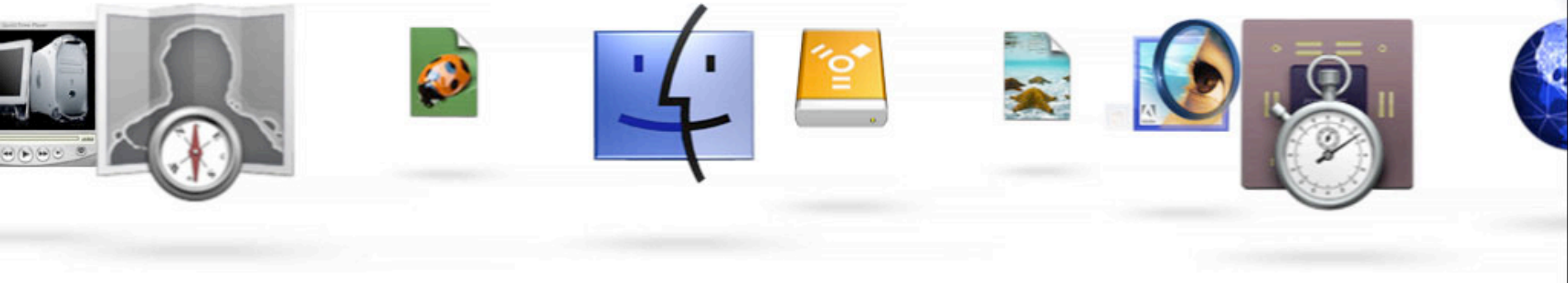




Exploring the Project Builder IDE

Session 903





Exploring the Project Builder IDE

Mike Ferris
Manager, Project Builder Team

Introduction

- Identify some new features in the Beta release
- Explore the core features of Project Builder
- Introduce newcomers to what's available
 - Show benefits of an IDE to those who have not used one
- Show old hands some new tricks and buried treasures



What You'll Learn

- Product news and roadmap
- Project concepts
- Tour of the IDE's features
- Future directions



Release Roadmap

- April 2002 Developer Tools CD release
- Jaguar release
- What's next?



April Tools

- A Beta release
 - Project Builder 2.0 IDE
 - Prerelease of GCC 3.1 for testing only
- Using the 2.0 IDE for development is okay
- Shipping products built with GCC 3.1 is not okay



Jaguar and Beyond

- GM release of the 2.0 Beta
- Concurrent with Jaguar Mac OS X release
- Ongoing releases as usual





Project Builder Concepts

Project Concepts

- References and groups
- Targets and build phases
- Build styles
- Executables



References and Groups

- References represent files
- Organized in user defined groups
- References use paths
 - Relative to project, group, build results
 - Absolute



Targets and Build Phases

- Targets define how to build a product
- Targets contain build phases and build settings
- Build phases represent the steps to build a target
 - Compiling, Linking
 - Copying stuff
 - Custom build logic
- Build settings control options and flags



Build Styles

- Build styles customize targets
 - Build styles contain build settings
 - Dynamically override or add to target settings
- Used for variations of targets
 - Development vs. deployment
 - Special compiler options
 - Use different compilers



Executables

- Executables can be run or debugged
- Automatically created for applications and tools
- Custom executables
- Executables define the “execution environment”
 - Command line arguments
 - Environment variables

 Executables are separate from targets now



Project Concepts

- References and groups
- Targets and build phases
- Build styles
- Executables

Become familiar with these concepts;
It will make using Project Builder much easier





A Tour of the Project Builder IDE

**Lance Saleme and
Scott Tooker**

Tour of the IDE's Features

- Interface concepts and multi-window UI
- Accessing documentation
- Navigating and searching projects
- Navigating and editing code
- Using source control
- Building and what's new
- Debugging and what's new



Interface Concepts

- Making a new project
- Project Workspace Window
 - “Content” tabs, “Tool” tabs, and Editor

 Multi-window User Interface

 Development Tasks

- Project, source editing, classes, targets, help
- Finding, building, debugging, running

 Window Templates





Demo

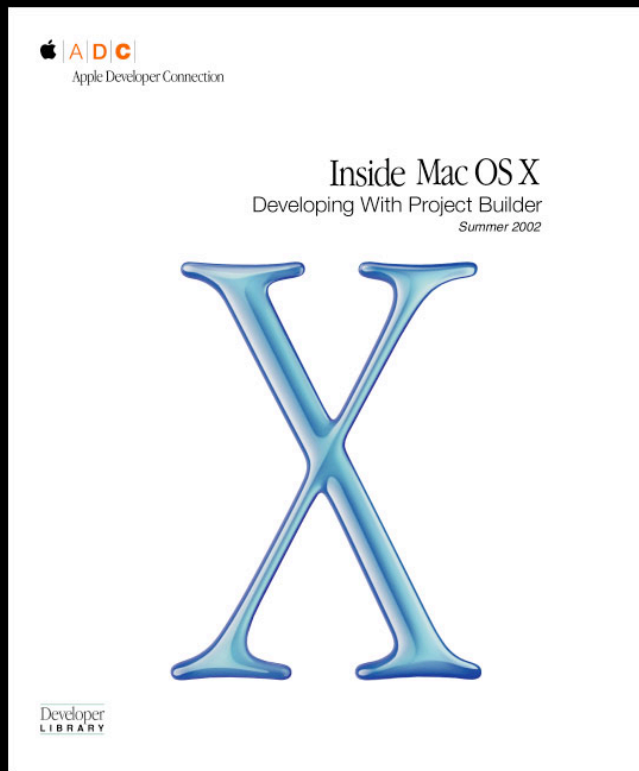
**Exploring the
Project Builder IDE**

Accessing Documentation

- Help menu access to the Developer Help Center
 - Project Builder Help
 - Developer Tools and Project Builder Tutorials
 - Framework References
 - Release Notes
- Integrated documentation features



A Real Book



- *Developing With Project Builder* contains:
 - Project Builder Help
 - Tutorials
- Available from Vervante, in Summer 2002
www.vervante.com/apple




Navigating Projects

- **NEW** Moving between tasks
 - Menus and Toolbar items
 - Class browser
 - API documentation integration
 - Advanced options
 - Group tree
 - Reveal in group tree
- **NEW** Bookmarks
 - Adding new bookmarks



Searching Projects

- Textual search and replace
- Regular expression search and replace
- Definition search
 - API documentation integration
-  Documentation search
- Find options
 - Controlling match criteria
 - Controlling what gets searched





Demo


**Exploring the
Project Builder IDE**

Navigating Code

- Symbols popup
- “Counterpart” toggle
- Loaded files popup and history
- Included headers popup
- Jump to definition (command-double-click)
- Jump to documentation (option-double-click)



Editing Code

- Tab and indent widths
- Syntax aware indenting
-  Built-in editors chosen by file type
- Standard arrow key navigation
- Standard emacs bindings
- Custom key bindings
- File encodings and line endings



Using Source Control

- Integration with CVS
- Basic operations
 - Status
 - Update, revert, commit
 - Add, remove
- Comparing
 - Project file with base or head revision
 - Any two revisions of a file





Demo

**Exploring the
Project Builder IDE**

Building

- Defining targets and build styles
 - Target editor
 - Build style editor
- Active target and build style
- Build preferences
- Performing a build
- Dealing with warnings and errors



New Build System Features

- GCC 3.1 support
- PFE support
- Target duplication
- Framework variants
- Java build setting UI
- Script phases that can act on installed products



Debugging

- Breakpoints
- Stack backtrace
- Threads popup
- Variable list
- Execution control
- Debugger console



New Debugger Features

- See NSString values in variable list
- New Type column in variable list
- Print Description to Console for Java
- Page protection watchpoint support in gdb





Demo

**Exploring the
Project Builder IDE**



Future Directions

Mike Ferris

Future Directions

“Enhance shareholder value by delivering world-class solutions that empower customers to deliver best of breed mission critical”



Future Directions

Yeah, yeah, yeah . . .



Future Directions

- Lots of ideas and lots of suggestions
- Track all bugs and feature requests
 - Radar bug tracking system
 - Feature list



The “List”

Plug-in APIs

- Built-in editors, External editors
- Plug-in build tools / compilers
- Syntax coloringFunction popup
- SCM systems, Debuggers, Indexers
- Tools / Content tabs, Model extensions
- Preferences modules, Info dialog modules
- Assistants (project/file, totally new kinds)
- Batch finders, Project/File Templates
- Various types of specifications

AppleScriptability of PB

Support multiple SDKs

Support multiple versions of Dev tools installed

Project references

SCM Integration

- Make checking for SCM more lazy / threaded
- Raw diff / log command
- Add SCM tab
- Repository definition / management
- Branching support, Tag support
- Provide flat list of changed files in SCM tab
- Handle login/password
- Import project into a repository
- Checkout a project from a repository

Error checking and reporting infrastructure

Background operations status dialog

Better localized resource support

Class browser

- Edit code through browser
 - Subclassing
 - Overriding
 - Defining new methods

Build System

- Manage InfoPlist.strings
- Take over dependency analysis from jam
- Compiler / tool specs
- Product / packaging specs
- Show dependencies in UI
- Touch / untouch files for build
- Product-oriented target editor view
- Allow cross-project target dependencies
- Show overridden settings visually
- Show real values of build settings
- Show derivation of real build settings
- Threaded build model
- Unify check syntax and main build
- Preprocess file
- Show assembly for file
- Disassemble file
- Deployment builds from UI
- Remote builds / “Build farms”
- javadoc / javah / RMI support
- Java wrapper project support
- Enable parallel builds

Spam, spam, eggs, and spam

Indexing

- Threaded indexing
- Stability and completeness

Localized project and file templates

File encodings in templates

Better documentation bookmarks

Performance work

Show classes adopting protocols

- Inverted hierarchy display

Group tree / other outlines

- Remember expanded items
- Horizontal scroller
- Lang name tool tips
- Focusing hierarchy
- Browser options
- Flat display options
- Sorting options

Incremental search toolbar item

Custom menu key equivalents and text keys

Editing

- Per-project tabs, indents, etc . . . settings
- Code completion
- Refactoring features
- Indentation / coloring improvements
- Template insertion and fill-in from docs
- Better code navigation

Reference searches

Reference browsing

Open Quickly improvements

Ralph the wonder llama

IB Integration

- Automatic outlet / action synchronization
- Common class tree

Merge projects

Split projects

Instantiate templates into existing projects

Allow moving tabs between tab bars

Handle different aspect ratios

Support multiple screens better

Code refactoring features

- Show protocols adopted by classes



Some Major Areas

- Plug-in APIs
- Editing and Indexing improvements
- Build system improvements
- Debugger improvements



Prioritizing

- How do we prioritize?
 - Input from external developers
 - Input from internal developers
 - Important platform initiatives
- We cannot prioritize what we do not know about
 - Report bugs
 - File enhancement requests



For More Information

- Apple Developer Connection tools page
<http://developer.apple.com/tools/>
- Project Builder page
<http://developer.apple.com/tools/projectbuilder/>
- Apple Developer Connection downloads
<http://connect.apple.com/>
- Bug Reporting
<http://developer.apple.com/bugreporter/>



Roadmap

904 Using Interface Builder:

Learn about the interface design tools

Hall 2

Thurs., 3:30pm

905 Apple Performance Tools:

See the tools to optimize your application

Hall 2

Thurs., 5:00pm

908 Delivering with Project Builder:

Hear about in-depth techniques

Hall 2

Fri., 2:00pm

FF015 Development Tools:

Make your thoughts known

Room J1

Fri., 3:30pm



Who to Contact

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Mailing Lists at Apple

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projectbuilder-users

Development Tools Engineering Feedback

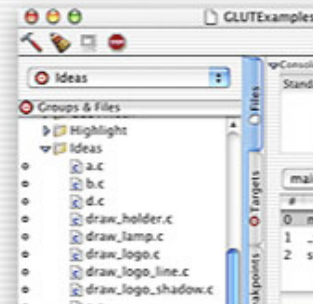
macosx-tools-feedback@group.apple.com

<http://developer.apple.com/wwdc2002/urls.html>





Q&A



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